

What is claimed is:

1. A heat sink, comprising:

a plurality of laterally placed planar fins forming from a sheet, the plurality
5 of laterally placed planar fins defining a folded fin structure having a top, a bottom,
and a front, and wherein the top of at least one fin of the folded fin structure is
modified to form an opening to receive a convection medium; and
a base attached to the bottom of the folded fin structure.

10 2. The heat sink of claim 1, further comprising a first fan attached to the top of
the folded fin structure to introduce the convection medium.

Fig. 2 3. The heat sink of claim 2, further comprising ^{NS} a second fan attached to the
front of the folded fin structure to introduce the convection medium.

15 4. The heat sink of claim 1, further comprising ^{860...} a clip, and wherein the clip
Fig. 8 thermally couples the folded fin structure to the base.

5. The heat sink of claim 1, wherein the sheet is made from a material selected
20 from a group consisting of copper, aluminum, a compound containing copper, a
compound containing aluminum, or thermally conductive plastic.

6. The heat sink of claim 1, wherein the folded fin structure allows greater than fifty percent of the plurality of laterally placed planar fins to be receptive to the convection medium.

7. The heat sink of claim 1, wherein the convection medium is guided by the folded fin structure to flow parallel to each surface of each fin of the plurality of laterally placed planar fins and parallel to the base.

8. The heat sink of claim 1, wherein the base is solid.

9. The heat sink of claim 8, wherein the base is made from a material selected from a group consisting of copper, aluminum, a compound containing copper, a compound containing aluminum, or manufactured diamond.

10. The heat sink of claim 1, wherein the base comprises two rectangular faces and four sides to define a sealed chamber.

11. The heat sink of claim 10, wherein the sealed chamber comprises a predetermined quantity of aqueous solution.

12. The heat sink of claim 11, wherein the aqueous solution is capable of

changing to a gaseous state to transfer thermal energy from the second planar face to the first planar face.

13. A method of manufacturing a heat sink, comprising:

- 5 creating a plurality of openings placed at predetermined intervals on a sheet;
 folding the sheet in an accordion fold to form a plurality of laterally placed
fins, the plurality of laterally placed fins defining a folded fin structure having a top
and a bottom; and
 attaching a base to the bottom of the folded fin structure.

10

14. The method of claim 13, further comprising attaching a fan to the top of the folded fin structure.

15. The method of claim 13, wherein creating a plurality of openings occurs
15 before folding a sheet in an accordion fold.

16. The method of claim 15, wherein creating the plurality of openings is executed through a progressive stamping process.

20 17. The method of claim 15, wherein creating the plurality of openings is executed by removing a plurality of rectangular portions at the predetermined

intervals on the sheet.

18. The method of claim 13, wherein creating a plurality of openings occurs after folding a sheet in an accordion fold.

5

19. The method of claim 13, wherein attaching the base to the bottom of the folded fin structure is executed through using a brazing process.

20. The method of claim 13, wherein attaching the base to the bottom of the folded fin structure is executed through using an epoxy.

21. The method of claim 13, wherein attaching the base to the bottom of the folded fin structure is executed through a soldering process.

22. A heat sink, comprising:
a thermally conductive sheet creased in an accordion fold to form a plurality of surfaces defining a fin bundle having a top and a bottom, wherein the top of the fin bundle is modified to create a plurality of openings, and wherein more than fifty percent of the plurality of surfaces are receptive to an introduced convection

medium;

a fan for introducing the convection medium, the fan attached to the top of

the fin bundle; and

a base attached to the bottom of the fin bundle.

23. The apparatus of claim 22, wherein the sheet is made from an alloy
5 containing aluminum.

24. The apparatus of claim 22, wherein the base is made out of manufactured diamond.

400
E1

ADD FI